

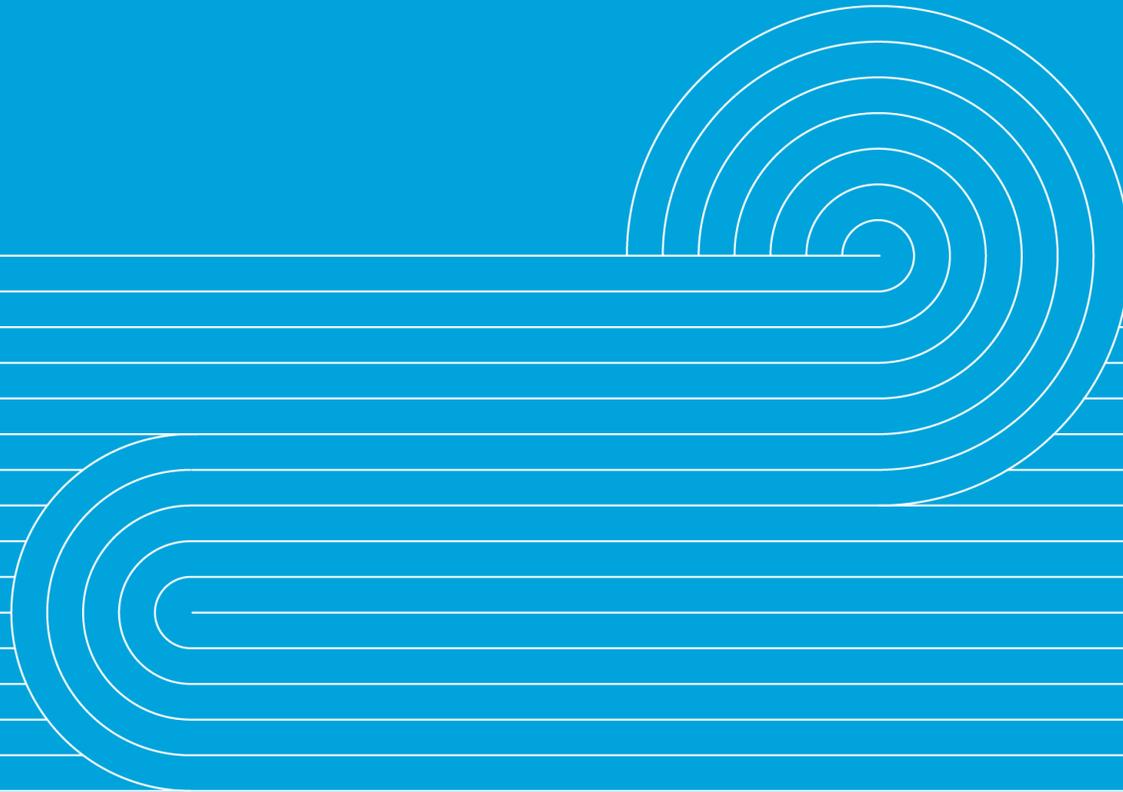


TRANSPower

# Navigating the winter capacity challenge

An extended System Operator Industry Forum to present our approach to coordinating the power system this winter

9 April 2024



# Opening **Karakia**

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Kia tau te rangimarie  
O te Rangi e tū iho nei  
O Papatūānuku e takoto nei  
O te taiao e awhi nei  
Ki runga i a tātou  
Tihei Mauri ora

## **Translation**

Let the peace  
of the sky above us  
of the earth laid out here  
and of the all-embracing universe  
settle upon us  
Breathe the breath of life

# Today's Agenda

## 1. Market update

*Isaac Ulusele, Market Analyst*

## 2. Winter: Market Information

*Ramu Naidoo, Market Operations Manager*

## 3. Winter: Managing Shortfalls

*Matt Hansen, Operations Manager Dispatch*

*Matt Copland, Grid & System Operations Manager*

## 4. Winter: Communicating potential electricity supply shortfalls

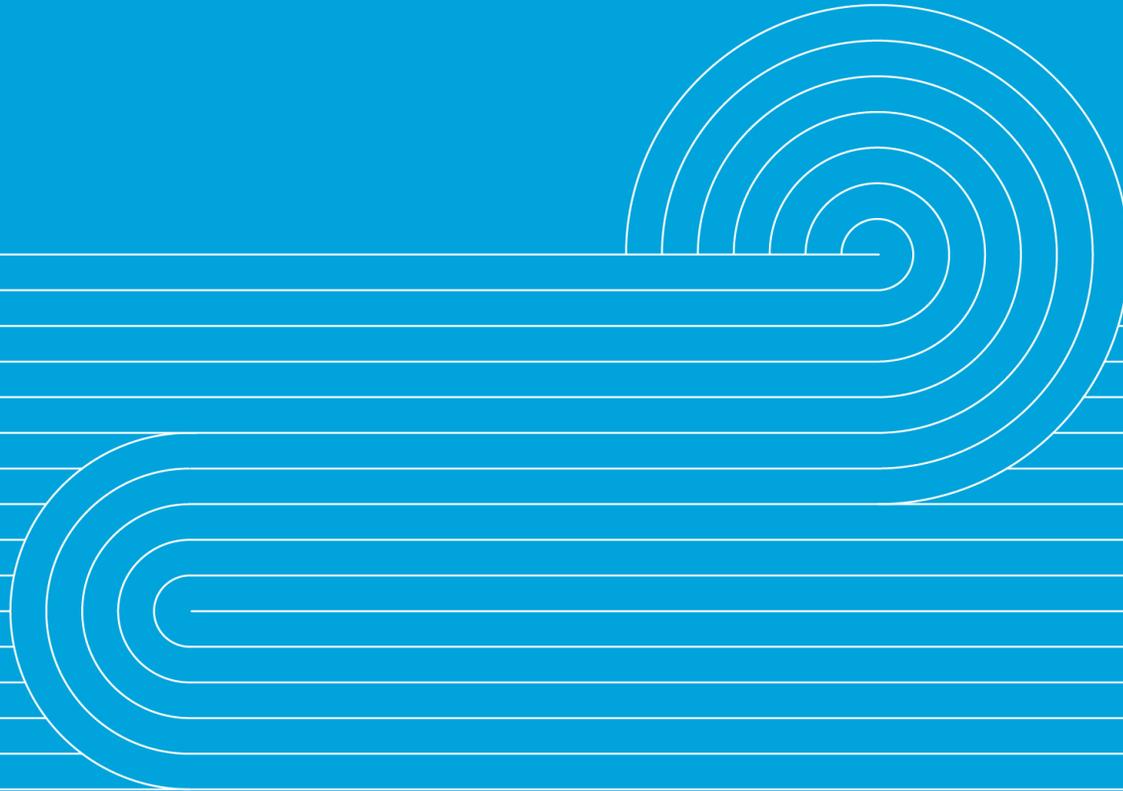
*Nathan Green, Principal Advisor Corporate Communications*

## 5. Questions





# Market Update



# Market update – Energy

- National hydro storage 83% of historic mean, South Island hydro 80%.
- Down 5% from previous week. Nearing 10<sup>th</sup> percentile storage.
- Increased energy risk compared to previous years. Recent Tauhara announcement will be captured in April ERCs.

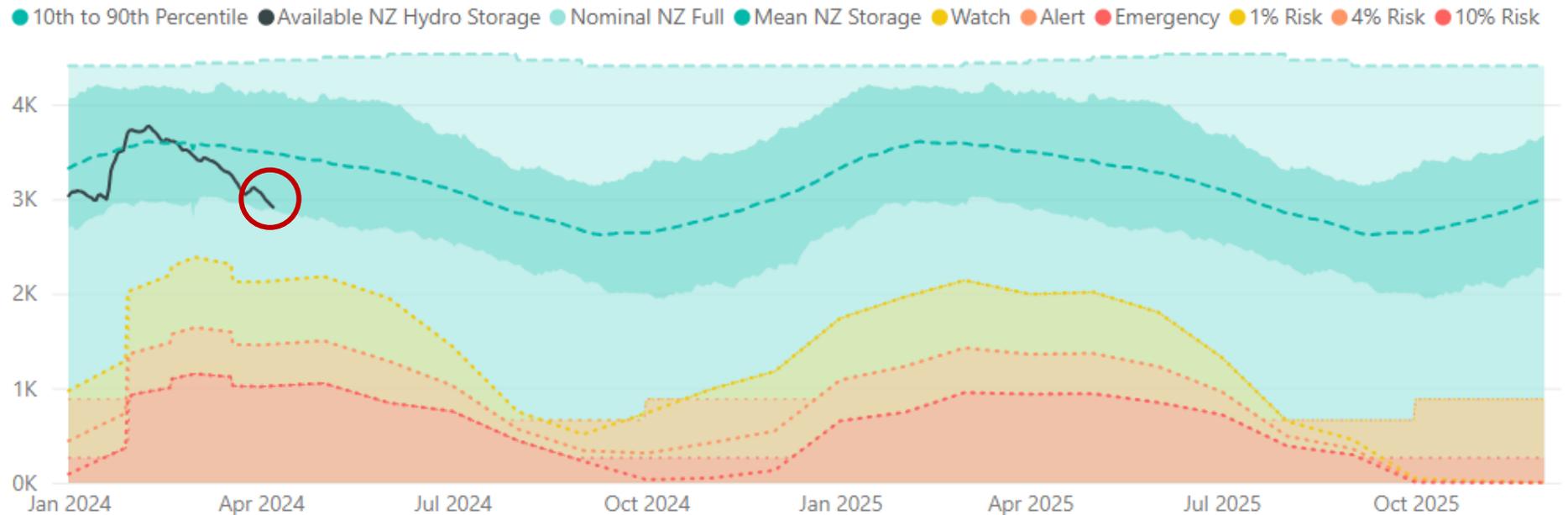
New Zealand Energy Risk



South Island Energy Risk



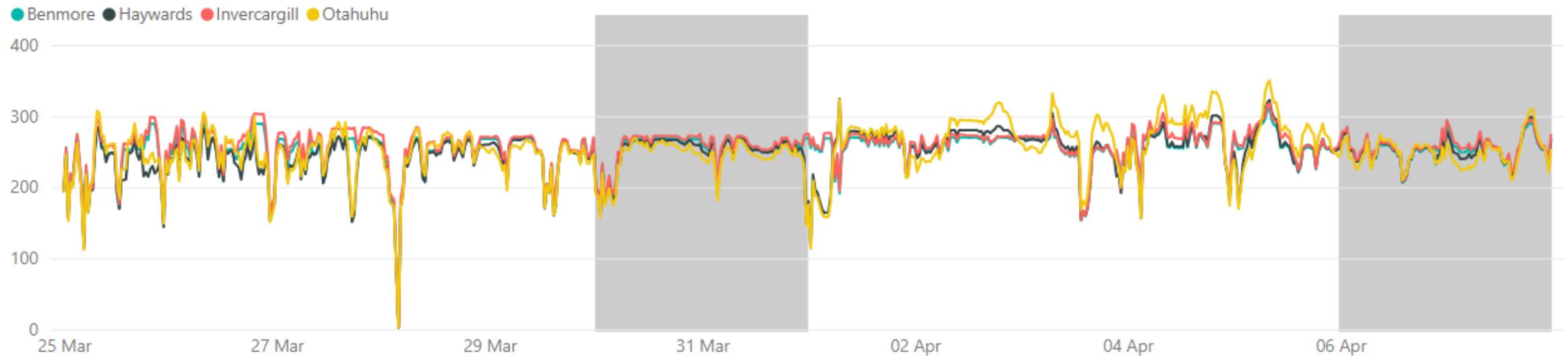
New Zealand Energy Risk Status Curves (Available GWh)



# Market update – Pricing

- Average price of ~250 \$/MWh at Haywards & Benmore.
- Steady rise in price since early March – in line with declining hydrology.
- Some price separation between islands due to HVDC in round-power mode. This phenomenon was explained in detail in the market insight published 10 September 2023.

Prices - \$/MWh

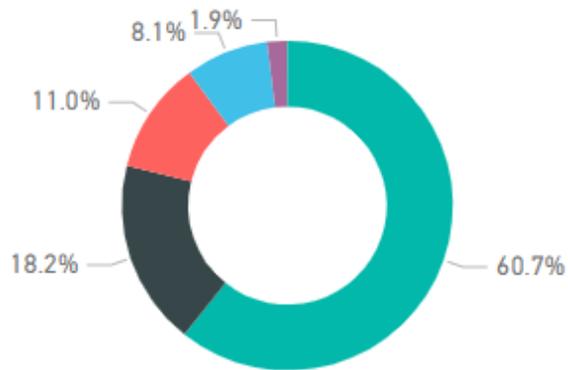


# Market update – Generation mix

- High thermal generation, low wind generation, and hydro generation is below average.
- Relatively low renewable percentage.
- With hydro declining and prices increasing, thermal is filling the gap.

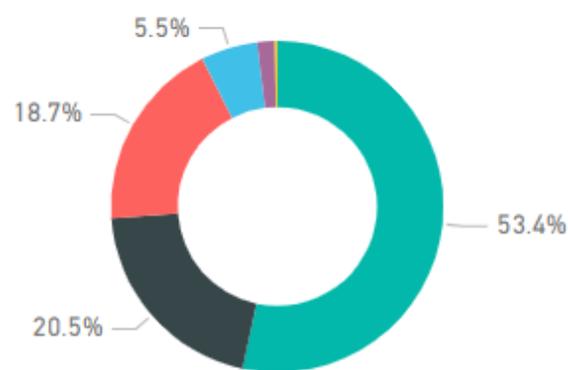
Last 52 Weeks Generation Mix

● Hydro ● Geothermal ● Thermal ● Wind ● Co-Gen ● Solar



Last 7 Days Generation Mix

● Hydro ● Geothermal ● Thermal ● Wind ● Co-Gen ● Solar



Average Metrics Last 7 Days

Renewable Percentage

**80%**

CO2e Tonnes/Week

**104,949**

CO2e g/kWh

**137.6**

Average Metrics Last 52 Weeks

Renewable Percentage

**87%**

CO2e Tonnes/Week

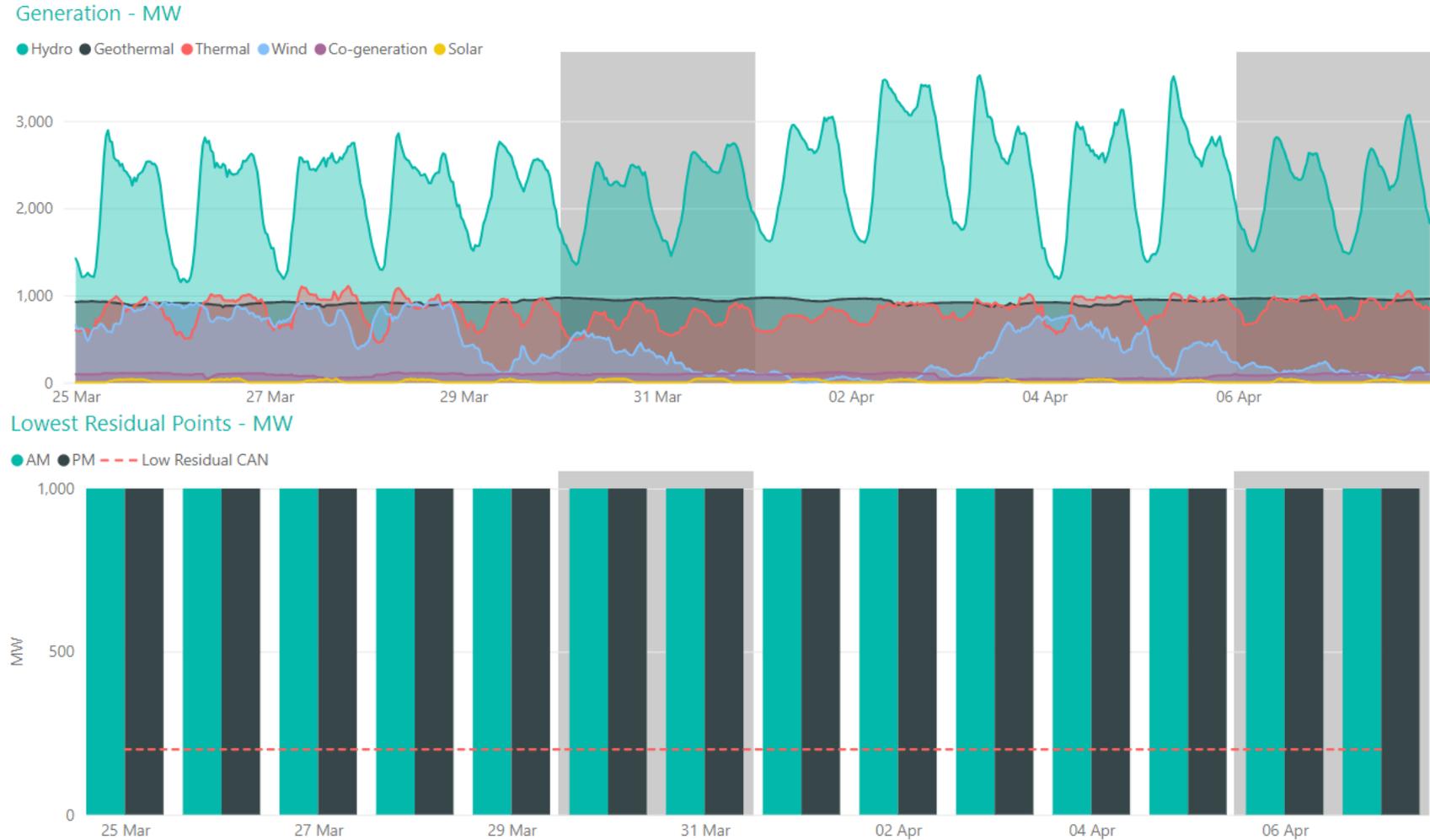
**62,651**

CO2e g/kWh

**76.7**

# Market update – Capacity residual margins

- No capacity issues in past two weeks. Residual generation was healthy.
- Thermal commitment has been high in line with the high energy prices/lower than average hydrology

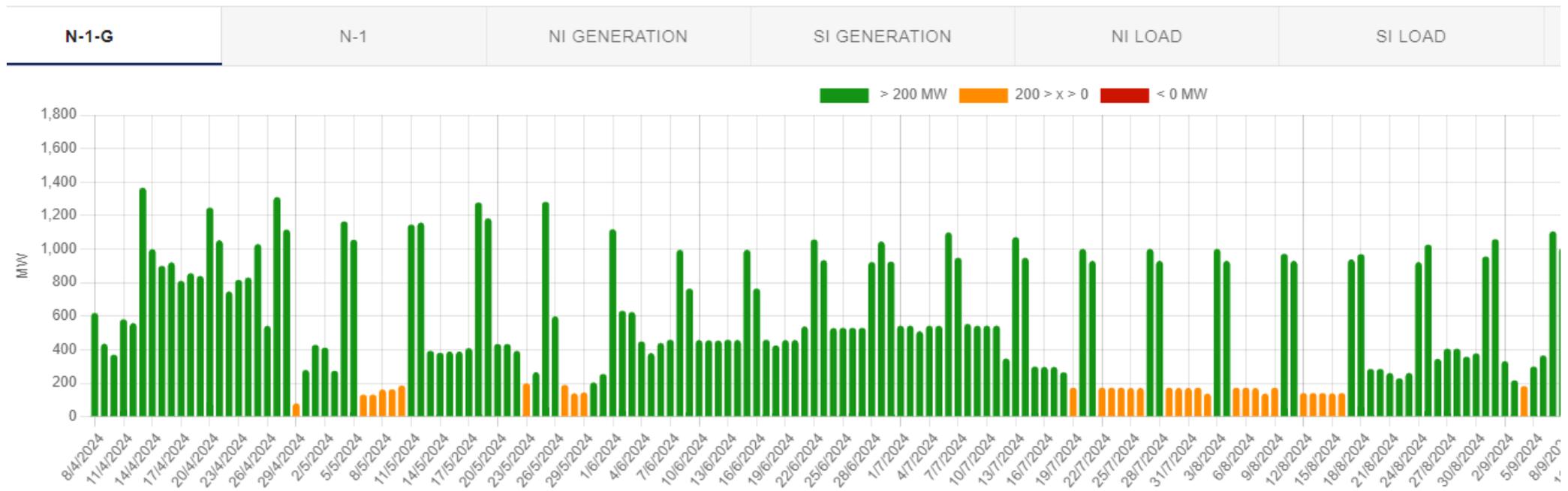


# NZGB update: N-1-G

- Long term model shows low margins in April, May, July, August and September.
- These low margins highlight periods of higher risk. Driven by generation unit outages and winter loads.
- April monthly report is out. Find it on the NZGB website: <https://customerportal.transpower.co.nz/nzgb>

*A quick reminder...*

- **Long term model** uses the highest peak load from the last year for the same period
- A 2% load increase is also applied

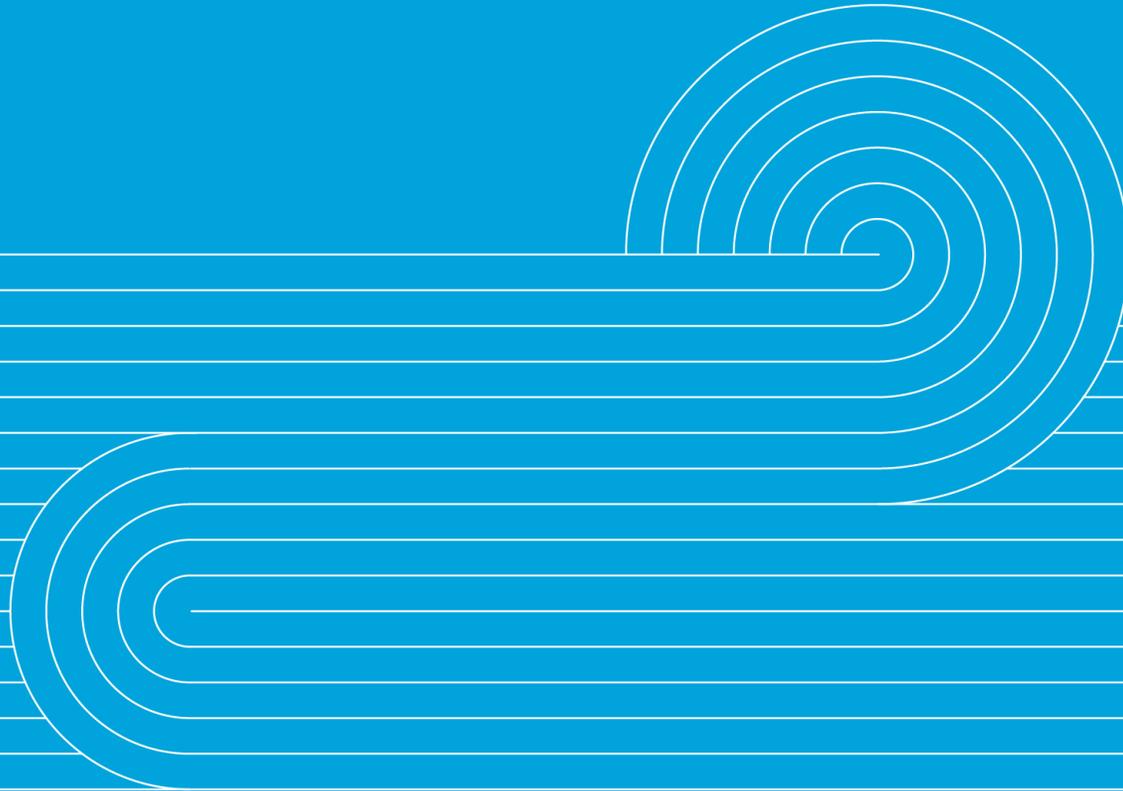


Long term model N-1-G as of 08/04/24



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# Winter: Market Information



# The challenge of meeting peak demand

- Security of supply in New Zealand is considered using two dimensions
  - “Energy” - meeting **seasonal** demand – potential challenge for winter 2024 (monitoring)
    - Winter outlook, Monthly ERCs, Weekly SoS updates
  - “Peak” - meeting **peak** demand – shared challenge for winter 2024
- The challenge of meeting peak demand has a number of drivers<sup>1</sup>:
  - Increasing peak demand
  - Increasing intermittent generation
  - Reduced quantities of generation offered into the market (thermal commitment, outages and new generation delays)
  - Need for sufficient flexible resources in the market to manage the increasing supply/demand balance uncertainty

The role of the system operator in meeting peak demand has two key aspects:

- Providing information to facilitate an efficient market outcome
- Managing potential shortfalls to avoid cascade failure

<sup>1</sup> Discussed in more detail in system operator Winter 2024 outlook market insight paper published in January 2024 (available [here](#))

# Information published regarding meeting peak demand

## Annual Security of Supply Assessment (SOSA)

*Forecast winter energy and capacity margins relative to security standards*

### Winter outlook

*Shape and size of energy and capacity risks for coming winter*

### New Zealand Generation Balance (NZGB)

*Generation margins for the next 200 days*

### Forward market schedules (WDS, NRS, PRS)

*Forecast market schedules, prices*

### Residual capacity

Sensitivity schedules

Wind generation forecast

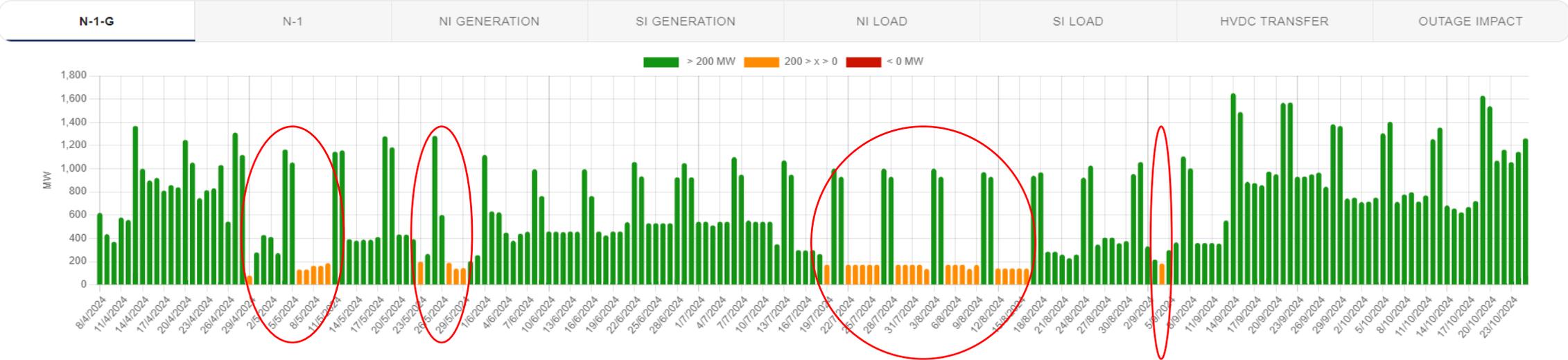
Controllable load visibility

### Real-time dispatch (RTD)

10 years    ~9 months    200 days    1 week    36 hours    4 hours    1 hour    5 mins    Real time



# NZGB - 200 days to one week



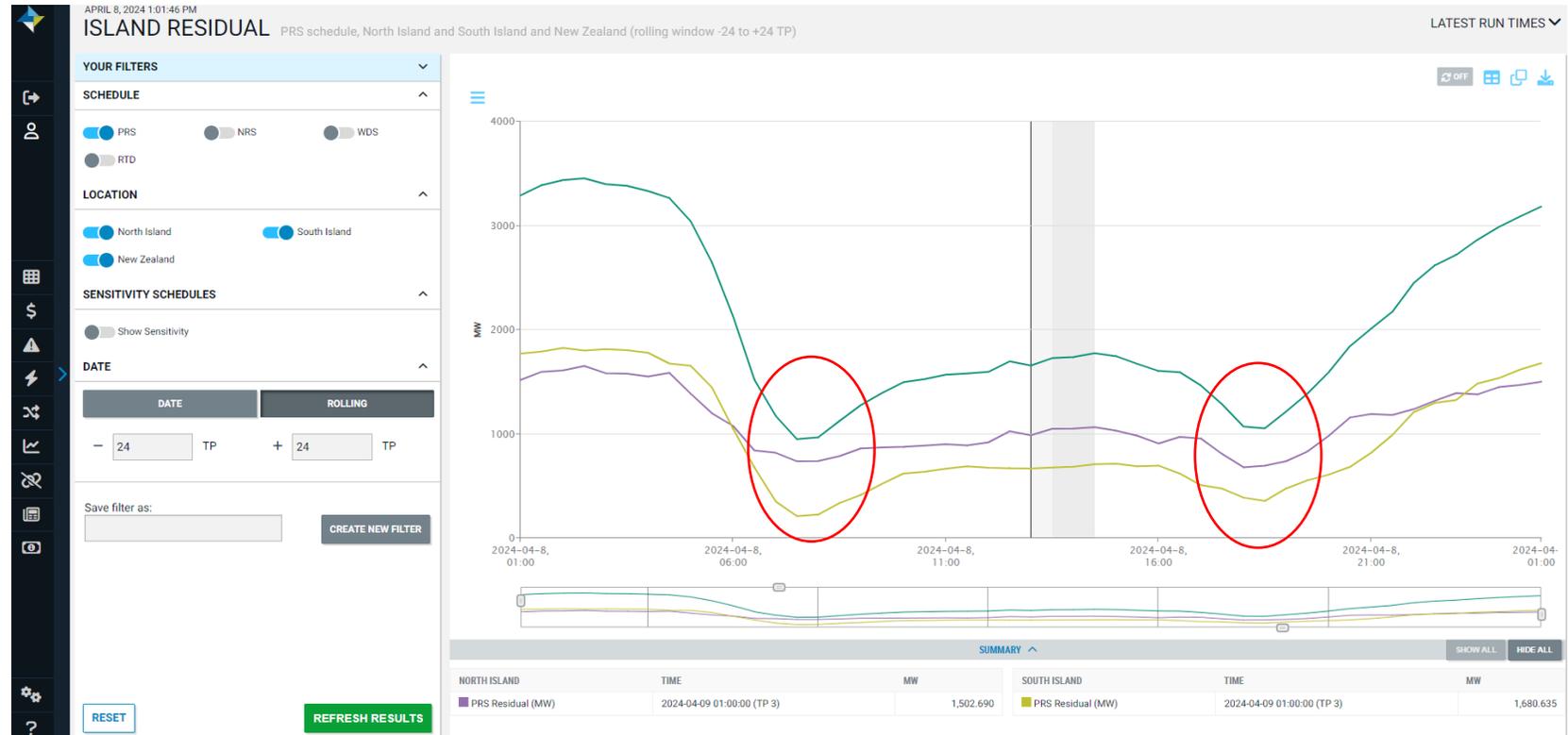
- Some changes to NZGB reporting are coming:
  - Demand side – switch to Tesla/Yes Energy probabilistic load forecast
  - Supply side – introduce new firm/unfirm generation scenarios (replacing current “low gas” scenarios)
  - Update peak load time duration by using seasonal assumptions based on historical data (separate assumptions for summer, shoulder and winter)
- More information and changeover date will be communicated to NZGB users in due course

<https://customerportal.transpower.co.nz/nzgb>



# Residual capacity

- “Residual” reflects the resources remaining in the market to meet demand + losses + reserves + frequency keeping
- Transparency and a forward view of a key input to the SO publishing market notices (Low Residual CAN, WRN, GEN)



[https://www2.electricityinfo.co.nz/island\\_residual](https://www2.electricityinfo.co.nz/island_residual)

# Sensitivity schedules

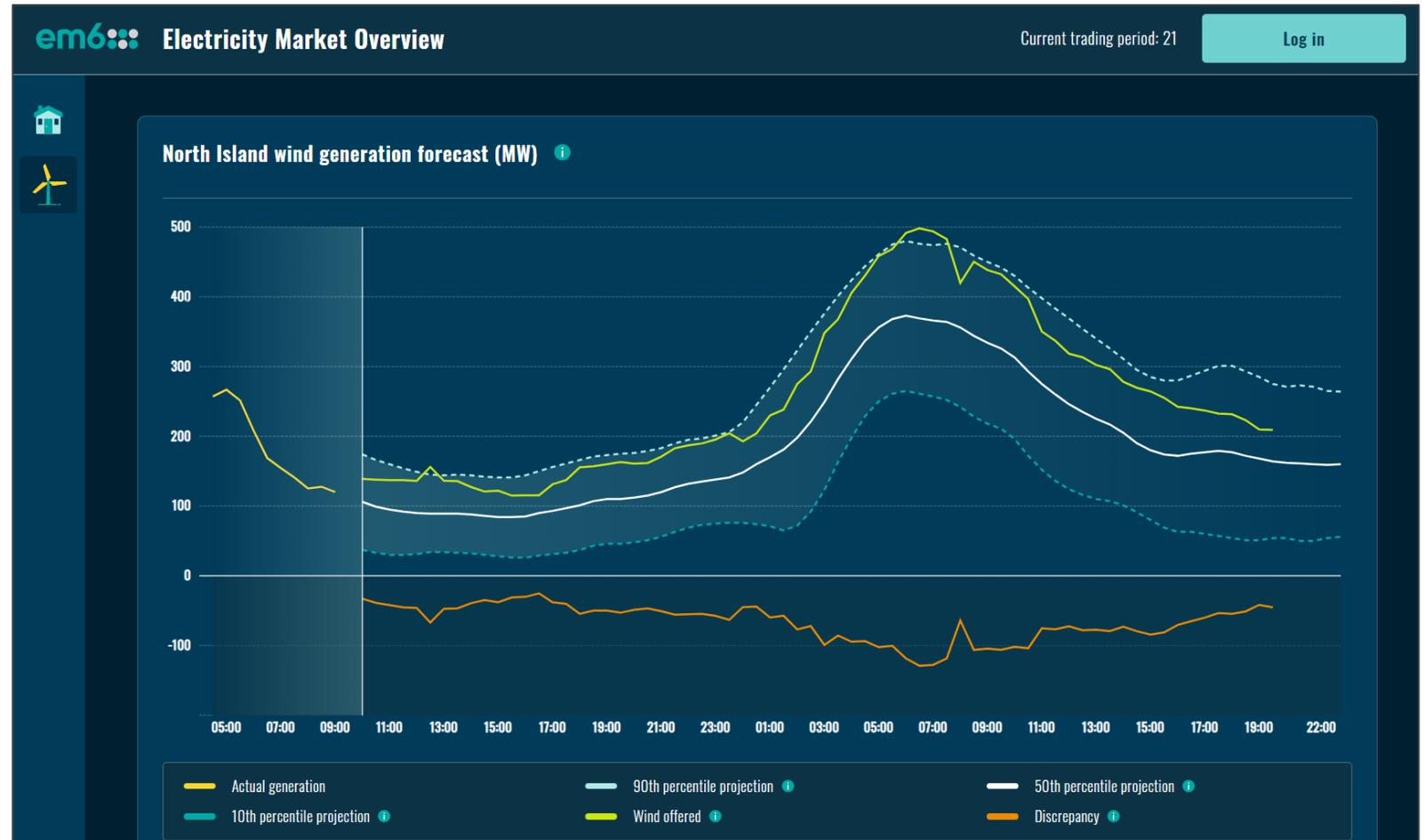
- Price impact of step changes in demand
  - -200MW
  - -100MW
  - +100MW
  - +200MW
  - +300MW
- Changes in demand intended as a proxy for changes in other variables



<https://www2.electricityinfo.co.nz/prices>

# Wind generation forecast

- Transparency and a forward view of a key input to the SO publishing market notices (Low Residual CAN, WRN, GEN)



<https://app.em6.co.nz/ni-wind-forecast>

# Controllable load visibility

- Last year's Urgent Code change required controllable load to be made available following a Low Residual CAN
- Permanent Code change has been agreed, go live 1 May 2024: [Code amendment omnibus #2 decision | Electricity Authority](#)
- Live test of Difference Bids 1 May 2024



<https://www2.electricityinfo.co.nz/prices>

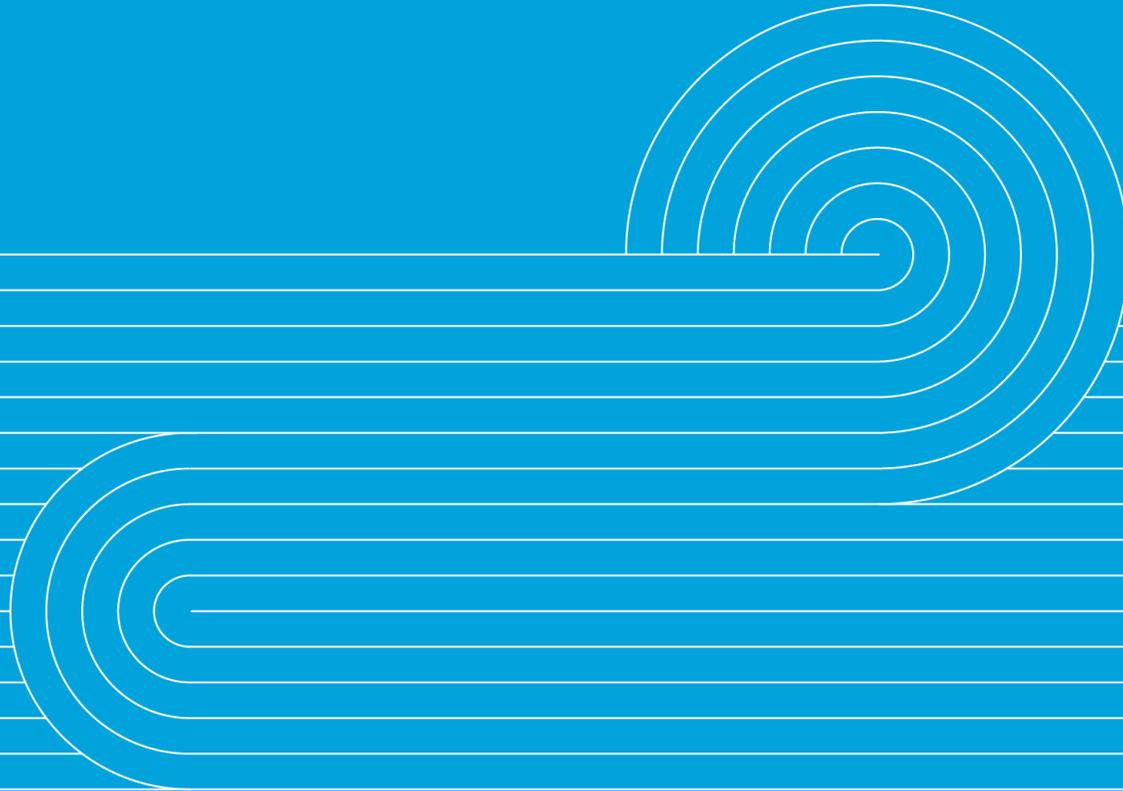
# Routes to market for additional flexible resources

- Real Time Pricing has created opportunities for flexible resources to participate in the market and play a role in meeting the peak challenge
  - Dispatchable demand (DD)
  - Dispatch notifiable load (DNL)
  - Dispatch notifiable generation (DNG)
- The system operator is available to support participants to engage with these opportunities
- More information or assistance is available at [market.operations@transpower.co.nz](mailto:market.operations@transpower.co.nz)

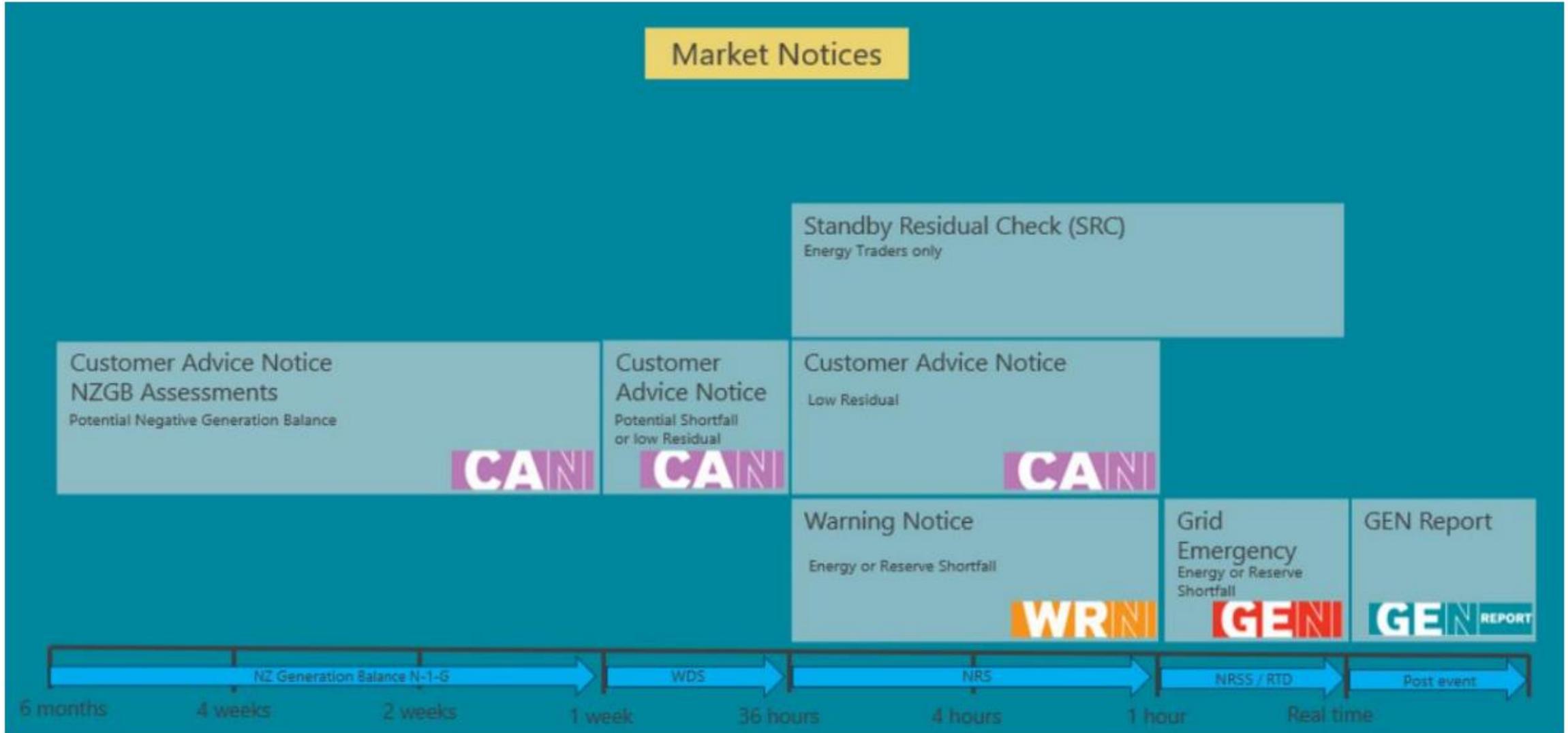


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# Winter: Managing Shortfalls



# Shortfall timeline – our notices



# Potential negative generation balance CAN – 4 weeks to 7 days



## Customer Advice Notice

To: CAN Energy Traders  
 Sent: 21-nov-2023 12:19  
 Ref: 5070548696

**Sample Only**  
 Email: NMDData@transpower.co.nz

Revision of:

### NZGB Assessment for Potential Negative Generation Balance in December 2023

This CAN provides notice of an NZGB assessment for a potential generation shortfall on the 5<sup>th</sup> of December 2023. This shortfall would be in the event of high peak demand, with outages currently planned for the date shown, when one large generator or an HVDC pole is unavailable along with the next largest risk setter (N-1-G). The impact is shown below.

Dates	Base Scenario		Outages				HVDC
	N-1 Margins	N-1-G Margins	Generation		Transmission		
			NI	SI	NI	SI	
Tue, 05/12/2023	484.0	-3.0	1630.2	778	100	0	183

For the above dates, the system operator recommends that:

- generators and the grid owner consider rescheduling outages; and
- generators and the grid owner avoid scheduling any further outages which may reduce generation margins.

As this shortfall is associated with multiple generation and transmission outages, the NZGB assessment has been uploaded to the NZGB website instead of against an outage on the POCP website. The NZGB assessment report mentioned above follows these [guidelines](#) and may be accessed via the following link: [December 2023 NZGB Assessment](#)

For more information, please contact Operations Planning, [OPS.Planner@transpower.co.nz](mailto:OPS.Planner@transpower.co.nz)

...

### Trigger:

- NZGB shows a potential negative generation balance (shortfall) for either N-1-G or N-1

### Purpose:

- to warn that a tight point is coming up in the 4 weeks to 7 days timeframe
- request action from participants

### Requests made to:

- Market participants to ensure their outages in POCP are accurate, shift existing outages away from tight periods and/or to make additional capacity available.
- Grid Owner to increase transmission offers where generation may be constrained back.



# Potential Shortfall or Low Residual CAN – 7 days to 36 hours (WDS)



## Customer Advice Notice

To: CAN NZ Participants  
Sent:  
Ref: 5311108915

From: The System Operator  
**Sample Only**  
Email: [NMDData@transpower.co.nz](mailto:NMDData@transpower.co.nz)

Revision of:

Potential Short Fall or Low Residual Situation

### Affected Dates and Times:

#### **01 May 2024, 17:00 - 18:00**

The System Operator advises that a National energy shortfall or low residual generation has been identified in the week ahead schedule (WDS) for the above times.

#### **For affected times, participants are requested to:**

- Ensure energy, wind generation, reserve offers, and load bids are accurate.
- Increase energy and reserve offers.
- Increase transmission offers where generation may be constrained.

#### **Process and further requests, if the situation is not resolved or worsens:**

This CAN gives you early notice of a pending situation. If insufficient generation and reserve offers appear in the NRS schedules (36 hours ahead of real-time), we will send:

- A Low Residual Customer Advice Notice (CAN) if **national** residual generation is less than 200 MW. The CAN will make further requests to participants to help resolve the situation. This could happen up to gate closure (36 hours to 1 hour ahead of real-time).
- A Warning notice (WRN) if an energy or reserve shortfall is identified or likely. The WRN will make further requests to participants to help resolve the situation. This could happen up to gate closure (36 hours to 1 hour ahead of real-time).
- A Grid Emergency Notice (GEN) if an energy or reserve shortfall is identified or likely within one hour of real-time. This will make further requests to grid-connected consumers and distributors to take action to alleviate the situation.

## Trigger:

- week ahead schedule (WDS) shows an energy or reserve shortfall or less than 200 MW of residual remaining for given times.

## Purpose:

- to warn that a tight point is coming up in the one week to 36-hour timeframe
- request action from participants.

## Requests made to:

- Market participants to ensure their offers are accurate and to make additional capacity available.
- Grid Owner to increase transmission offers where generation may be constrained.

# Low Residual CAN – 36 hours to 1 hour (NRS)



## Customer Advice Notice

Sample Only

**To:** CAN NZ Participants  
**Sent:** 11-may-2023 06:49  
**Ref:** 00000000

**From:** The System Operator  
**Telephone:** 0800 488 500  
**Email:** NMDData@transpower.co.nz

Revision of:

Low Residual Situation

24 May 2023, 17:30 – 18:30

The System Operator advises that **National** residual generation is less than 200 MW for the above times.

For affected times, participants are requested to:

- Ensure energy, wind generation and reserve offers and load bids are accurate
- Increase energy and reserve offers.
- **Submit difference bids for discretionary demand (for the identified time plus 1 hour either side)**
- Increase transmission offers where generation may be constrained.

### Process and further requests, if situation worsens:

This CAN gives you early notice that if the situation worsens we may have insufficient generation to meet demand and cover reserves for a contingent event. If insufficient generation and reserve offers appear in the schedules we will send:

## Trigger:

- market schedules (NRS) shows less than 200 MW of residual remaining for given times.

## Purpose:

- to warn that a tight point is coming up in the 36 hour to one hour timeframe and
- request action or preparations from participants.

## Requests made to:

- Market participants to reoffer to provide more generation.
- Grid Owner to increase transmission offers where generation may be constrained.
- Distributors to submit difference bids for the identified time and prepare to manage load during those times.
- Direct connects and retailers to be aware and prepare for potential impacts or requests.



# WRN – 36 hours to 1 hour (NRS)



## Warning Notice

Sample Only

**To:** WRN NZ Participants  
**Sent:** 07-oct-2022 05:37  
**Ref:** 00000000000  
**From:** The System Operator  
**Telephone:** 0800 488 500  
**Email:** NMDData@transpower.co.nz

### Revision of:

**Cause:** Insufficient Generation offers to meet demand North Island  
**Region or GXP affected:** National  
**Starting:** 24-May-2023 17:30  
**Ending:** 24-May-2023 18:30  
The System Operator advises there is a risk of insufficient generation and reserve offers to meet demand and provide N-1 security for a contingent event.

**Consequences on the power system:**  
Reduced reserves for the CE risk may be dispatched, and/or the system operator may need to manage demand.

For the period above you are requested to:	At:
Decrease demand <u>by</u> using controllable load (that is not offered as instantaneous reserve) and increasing distributed generation	
Increase energy offers	National
Increase instantaneous reserve offers	National
Update non-conforming load bids	National
Submit difference bids for discretionary <u>demand</u> (For the identified time plus 1 hour either side).	National
Increase transmission offers where generation may be constrained.	National

## Trigger:

- a forecast deficit at given times.

## Purpose:

- request participants to take action at the times given, and
- to warn participants of potential consequences if the issue is not alleviated

## Requests made to:

- Market participants to reoffer to provide more generation.
- Grid Owner to increase transmission offers where generation may be constrained.
- Distributors to submit difference bids for the identified time and prepare to manage load during those times.
- Direct connects to prepare to reduce load at the times given.
- Retailers to take notice of potential consequences as consumers may be affected by a requirement to shed load.

# GEN – 1 hour to real time (NRSS / RTD)



**Grid Emergency Notice**      **Sample Only**

**To:** GEN NZ Participants      **From:** The System Operator  
**Sent:** 24-May-2023 16:40      **Telephone:** 0800 488 500  
**Ref:** 00000000000000      **Email:** NMDData@transpower.co.nz

**Revision of:** GEN, 4376378486, 23-jun-2022 07:58, Insufficient Generation offers

<b>Cause:</b>	Insufficient Generation offers National
<b>Region or GXP affected:</b>	North Island, South Island
<b>Starting:</b>	24-May-2023 17:30
<b>Ending:</b>	24-May-2023 19:30

This is a New Zealand-wide emergency. The System Operator advises there is a risk of insufficient generation and reserve offers to meet demand and provide N-1 security for a contingent event.

**Consequences on the power system:**  
Reduced reserves for the CE risk may be dispatched, and/or the system operator may need to manage demand.

For the period above you are requested to:	At:
Increase energy offers	National
Increase instantaneous reserve offers	National
Decrease demand by: using controllable load (that is not offered as instantaneous reserve) and increasing distributed generation.	National
Increase transmission offers where generation may be constrained.	National

## Trigger:

- either a forecast deficit or a real-time deficit is seen after gate closure

## Purpose:

- to allow market participants to reoffer, and
- to request participants respond to actions in the GEN, and
- to warn of the consequences if the requirements are not met.

## Requests made to:

- Market participants to reoffer to provide more generation.
- Grid Owner instructed to return assets to service that may increase available generation, or to reconfigure the grid.
- Distributors and direct connects requested to reduce load at the times given, and to take notice that customers may face disconnection if the requirements are not met.
- Retailers to take notice of potential consequences as consumers may be affected by a requirement to shed load.

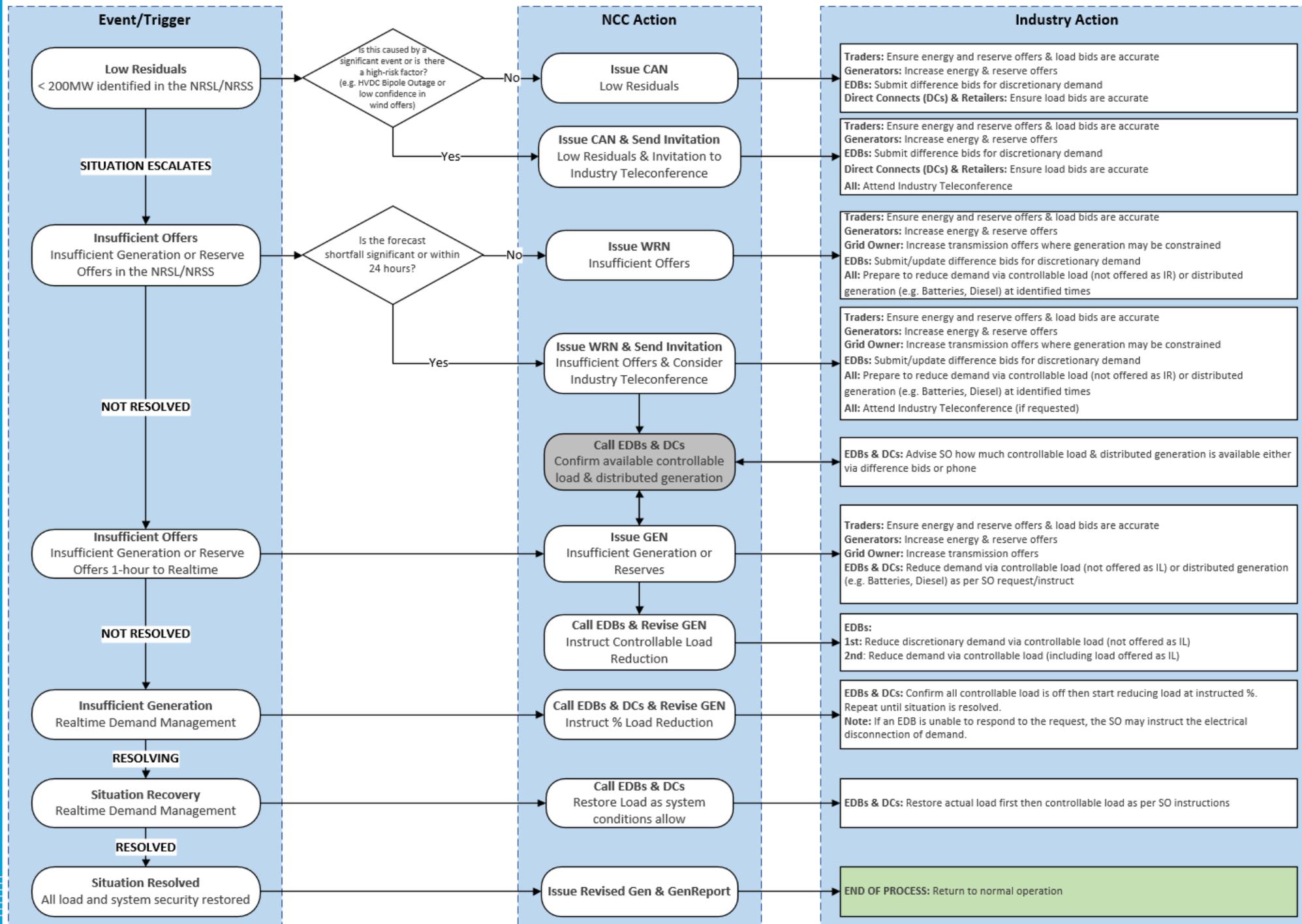


# Difference Bids

- The Code change requires EDBs to offer their Controllable load via agreed method with the SO.
- The expected method for providing Controllable load is to submit difference bids via WITS.
- Difference bid means the quantity of Controllable load that a connected asset owner estimates will be available for use by the system operator under a grid emergency.
- Difference bids must exclude DD, DNX, IR/IL, and load you intend to use for your normal network demand management .
- Bid should be a reasonable estimate of available controllable load for the specified times .
- If you do not expect to have any controllable load available (e.g., it is already off), offer “0MW @ \$9000”.
- Offered at a single price tranche of \$9000 (price avoidance, not paid) .
- Single offer per EDB (nominated GXP) .
- Aggregated bids from multiple EDB’s at a single GXP by agreement with SO .
- Only offered when requested by the System Operator (CAN or WRN) .
- Small EDB’s (<100MW peak load) and without 24-hour control, **via agreement with SO** verbal offers only



# Energy Shortfall Process



# Industry briefings

We may call an industry briefing when:

- There is information the system operator wants to share with industry,
- When we need immediate action and time is tight (but not real time),
- We are not seeing a response from industry in the timeframe needed,
- If we are in a situation where we expect to see demand management and we have time to have a briefing.

Invitations will be sent by e-mail to the registered addresses for notices and to the Major Power System Event Contact List (sign up: [nathan.green@transpower.co.nz](mailto:nathan.green@transpower.co.nz))



# Industry exercise – a chance to practise

- Industry exercise over two days:
  - Day 1 for control rooms – 1 May
    - Focus on operational response and communications between the SO, distributors, generators and industrial loads
    - Exercise pre-briefing to be held on 29 April
    - Sign up: [industryexercise@transpower.co.nz](mailto:industryexercise@transpower.co.nz)
  - Day 2 for comms and consumer teams – 8 May
    - focus on communications from Transpower to distributors and retailers and out to consumers
    - Exercise pre-briefing to be held on 6 May
    - Sign up: <https://forms.office.com/r/qiM1BK2zGH>
- Live test of Difference Bids (also 1 May 2024)



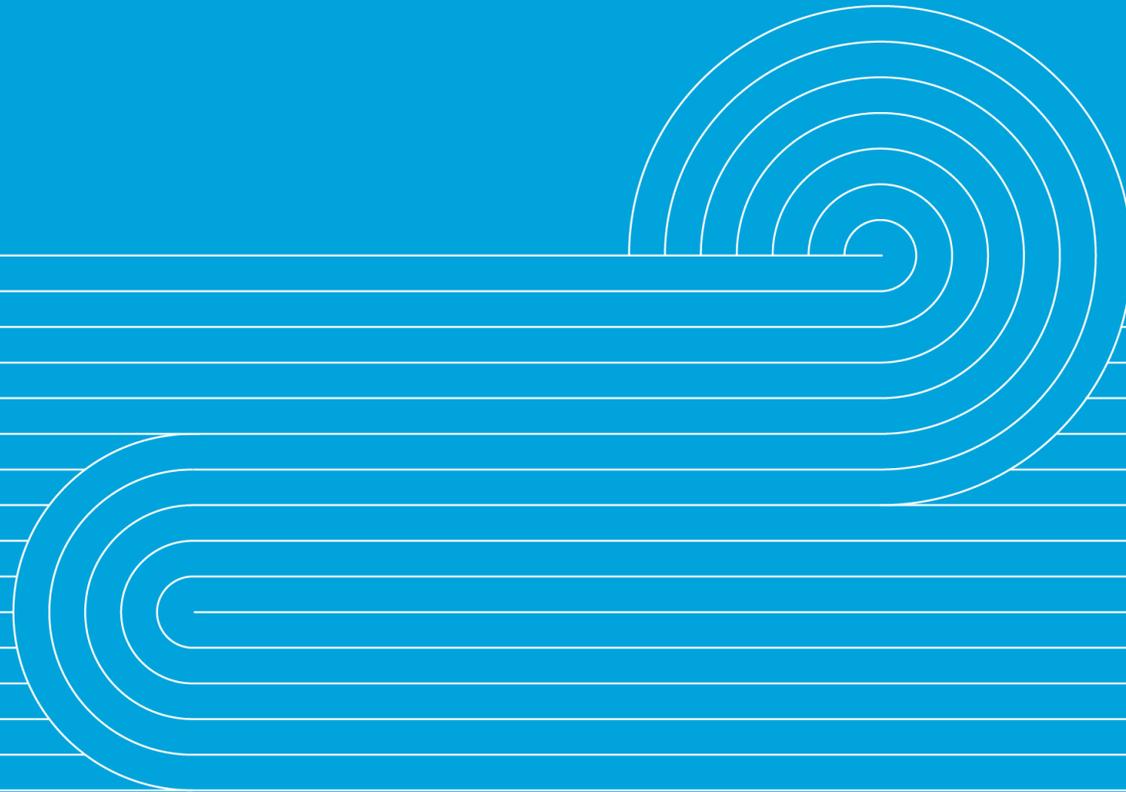
# How can you help?

- Check that your internal systems escalate and communicate notices and industry briefing invitations as appropriate for your business
- Consider timing of transmission and generation outages (keep POCP up to date)
- Keep SO up to date with information that supports our modelling or could impact our view on risk
- Ensure accuracy of bids and offers, from 1 hour out to 7 days (persistence offers, non-conforming loads, etc)
- Respond to SO formal notices (CAN, WRN, GEN) in a timely manner
- Participate in the upcoming industry exercise
- Respond to the live-test of Difference Bids on 1 May 2024

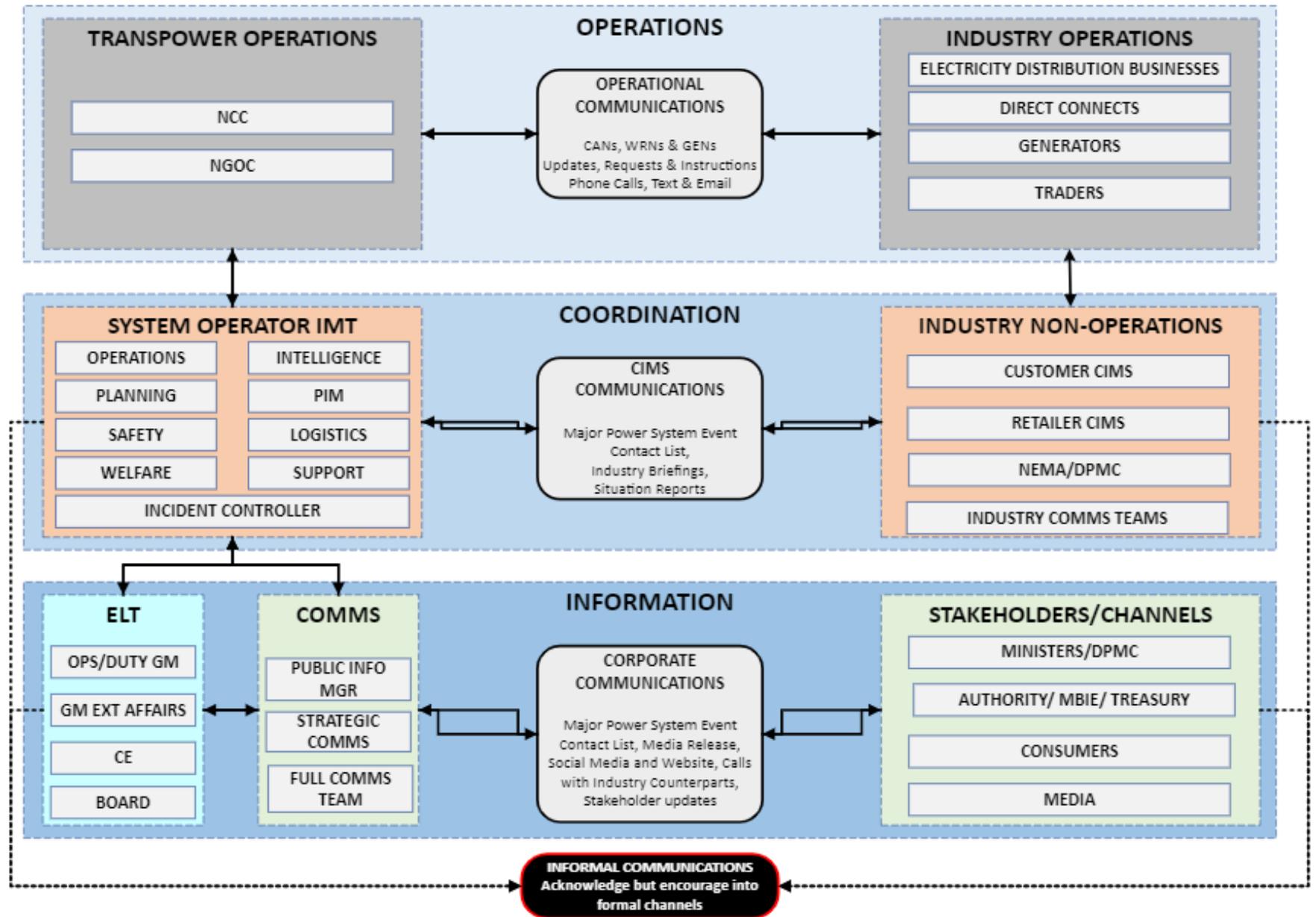


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# Winter: Communicating potential electricity supply shortfalls



# Communications channels in a major power system event



# Major Power System Event Contact List

System wide events with likely consumer impact that needs a rapid response from industry participants

- making additional generation available, or
- managing demand to ensure grid security
- communicating through industry and out to end-consumers, especially medically dependent consumers

## Who could be on the list

Generators, lines companies, retailers and any other system participants:

- chief executives
- operations and other senior managers
- communications and customer leads
- control room managers/staff for additional info



Sign up: [nathan.green@transpower.co.nz](mailto:nathan.green@transpower.co.nz)



# Use of the Major Power System Event Contact List

## When would we use the Major Power System Event Contact List

- in some instances when we issue a low residual Customer Advice Notice (CAN)
- a warning notice (WRN) issued about any system wide event
- a grid emergency (GEN) being called
- a range of other situations
- the grid owner could also use the list

We would also use the text alert system for a WRN or GEN

## What we would use it for

- as an alert system
- inviting participants to industry briefings
- distributing key messages, media releases and other information
- to get help from participants to communicate with electricity consumers through their channels
- early warning for medically dependent and vulnerable consumers, where time allows

**List supplements  
but does not  
replace internal  
escalation channels**



# Principles and approach to major event communication

Provide advance warning of any potential impact on consumers' electricity supply

Bearing in mind that situations can evolve rapidly and with little warning

In practice, we will issue a media release and post to Facebook and our website outage banner when a WRN or GEN is issued and demand management expected.

We will typically NOT communicate publicly about low residual CANS

We will ask New Zealanders to be mindful of electricity use while supply is tight or if there are managed power cuts.

We will also distribute messages to industry through the Major Power System Event Contact List and ask you to proactively share with consumers through your networks.

Coordinated “no-blame” approach to communications

- We will take lead on media engagement and communicating with central government
- Participants to lead on communicating with local government and stakeholders

## Transpower urges Christchurch residents to conserve power to mitigate risk of power cuts

28 Mar 2023 Type: [General news](#)

Transpower is calling on consumers in Christchurch, Rangiora and Kaiapoi to reduce electricity usage this evening to minimise the risk of power cuts.

The situation has occurred with electricity demand soaring because of unseasonable cold weather while a transformer at Islington substation is on planned outage.

Some examples of how people can help are:

- Delay putting on a load of washing, using the dryer or dishwasher
- Delay charging electronic devices and electric vehicles
- Turn off heaters and lights in rooms that they are not using

Because it is a cold evening, Transpower is advising people to stay warm by continuing to heat the rooms they are using but asking them to consider turning down the temperature a degree or two.

Transpower is working with electricity lines companies Mainpower and Orion to switch off controllable load such as hot water systems to reduce demand on the grid.

If this is not enough to balance the power system, along with consumers conserving power, then Transpower will need to ask lines companies to disconnect a small number of customers for a short time until peak demand is over, which is expected to be around 7pm.

Power cuts will be a last resort to keep the power grid secure and minimise the risk of cascade grid failure, which would result in extended outages for a much longer period.

**For media enquiries, please contact:**

Nathan Green 027 387 5256.

# Make people part of the solution, and educate

Experience shows people (and media) can be forgiving if they understand what has happened and what is being done

If the worst doesn't happen, it's an education opportunity.

And it builds trust that we will communicate when people need to know about power system risk

## Transpower thanks Christchurch residents for help avoiding risk of power cuts

28 Mar 2023 Type: [General news](#)

Transpower has said that reductions in electricity use by residents in Christchurch, Rangiora and Kaiapoi along with quick work by local lines companies to switch off controllable load such as hot water systems helped avoid power cuts this evening.

The owner of the national electricity grid called for help from residents around 6pm this evening after unseasonably cold weather pushed up electricity demand while one of its transformers at the Islington substation was on a planned maintenance outage.

Transpower also worked with electricity lines companies MainPower and Orion to switch off controllable load such as hot water systems to reduce demand on the grid. Residents should not have noticed any impact from this as it was for a short time and hot water systems are regularly switched on and off to manage demand peaks.

Peak demand started tapering off after 7pm and no power cuts were needed.

Transpower is grateful to those who took action and to Orion and MainPower for their efforts in assisting to manage the issue and ensuring everyone in the region remained connected with power.

The transformer on outage could not be brought back earlier to mitigate the risk this evening.

Transpower has taken steps to prevent the issue reoccurring until the transformer is returned to service later this week.

Outages are necessary so that maintenance work can be done to prevent the risk of unplanned outages caused by equipment failing. They are typically scheduled outside of winter when demand is lower.

If power cuts had been necessary, they would have been for a limited time as a last resort to keep the power grid secure and minimise the risk of cascade grid failure. Grid failure would have resulted in outages affecting a significantly larger number of people for a much longer period.

## Possible power cuts avoided after Christchurch homes reduced their electricity usage

Tina Morrison · 21:29, Mar 28 2023



KELLY HODEL/STUFF

Electricity demand is soaring because of unseasonable cold weather while a transformer at Islington substation is on planned outage.

Possible power cuts were avoided this evening after people in Christchurch, Rangiora and Kaiapoi reduced their electricity usage.

The power reductions, as well as “quick work by local lines companies” to switch off controllable loads such as hot water systems, helped to avoid any problems, said Transpower.

The company, which owns the national electricity grid, called for help from residents around 6pm after unseasonably cold weather pushed up electricity demand, while one of its transformers at the Islington substation was on a planned maintenance outage.

Peak demand started tapering off after 7pm and no power cuts were needed.



# Questions and answers

Q. Does the residual calculation take into account reserves and frequency keeping requirements?

A. Yes. The residual calculation looks at the available capacity after accounting for instantaneous reserves and frequency keeping requirements. [Slides amended]

Q. Is any work be done on improving the WDS?

A. Providing high quality offers and bids up to 7 days out is the key to improve the quality of the WDS. The load forecast for the WDS has improved with the use of the Tesla/YesEnergy forecast.

Q. Will EDB's have access to your Tesla forecasts?

A. The Tesla load forecast is used as an input in the market schedules. The load for these schedules is available on WITS. See here: <https://www2.electricityinfo.co.nz/energy-quantities>

Q. Will the recording and slides be made available?

A. Yes these will be made available on our website: <https://www.transpower.co.nz/system-operator/information-industry/system-operator-industry-forum>

A. Q. In regard to your comments on WDS and accuracy of offers. Is there anything else we can be doing to put pressure on to achieve this? In the past for say HVDC outages there have been letters sent to CEO's asking for more accurate offers. Could something like that be done this year to ensure we get the response you're after?

A. Great suggestion. Our CE reinforced some of the asks at the recent CEO Forum and we will consider the idea further internally.



## Closing **Karakia**

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Unuhia, unuhia,  
Unuhia ki te uru tapu nui  
Kia wātea, kia māmā, te ngākau,  
Te tinana, te wairua, i te ara tangata  
Koia rā e Rongo, whakairia ake ki runga  
Kia tina! Tina! Hui e! Tāiki e!

### Translation

Draw on, draw on  
draw on the supreme sacredness  
to clear, to free the heart,  
the body and spirit of humankind  
That is Rongo suspended high above us  
Draw together! Affirm!



**Thank you**

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